

Notice of Allowability

Application No.

10/757,936

Examiner

Denise Tran

Applicant(s)

HIGAKI ET AL.

Art Unit

2189

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 8/9/05 and the telecommunication on 9/15/05.
2. ☒ The allowed claim(s) is/are 1-24.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 1/16/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 9/15/05.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Denise Tran
9/15/05

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Carl Brundidge, Reg. 29,621 on 9/15/05.

2. The application has been amended as follows:

In the claims:

Claim 3, line 2, please, replace "a plurality of communication channels" with –the plurality of communication channels--;

Claim 5, line 2, please, replace "a plurality of communication channels" with –the plurality of communication channels--;

Claim 7 (currently amended) A disk array comprising:

a plurality of disk units;

a first control unit, to be connected to a host unit, for controlling input and output between said host unit and said disk ~~units~~ array;

Art Unit: 2189

a second control unit, connected to said disk units, for controlling input and output between said first control unit and said disk units and controlling transfers between said disk units;

a common memory which stores disk management data indicating a status of each of said disk units; and

a plurality of multiplex communication channels connecting some of said disk units and said second control unit,

wherein data transfer in said multiplex communication channel is controlled by said second control unit, and data transfer speed of said multiplex communication channel is higher than that of each of said disk units,

wherein said disk units form a plurality of groups each including at least one disk unit from each communication channel, and

wherein data of a disk unit connected to one communication channel of a group can be recovered using data of another disk unit connected to another communication channel of said group.

Claim 9, line 2, please, replace “a plurality of communication channels” with –the plurality of communication channels--;

Claim 11, line 2, please, replace “a plurality of communication channels” with –the plurality of communication channels--;

Art Unit: 2189

Claim 13, (currently amended) A disk array comprising:

a plurality of disk units;

at least one spare disk unit serving as a spare for said disk units;

a first control unit, to be connected to a host unit, for controlling input and output between said host unit and said disk array;

a second control unit, connected to said spare disk and said disk units, for controlling input and output between said first control unit and said disk units and controlling transfers between said disk units; and

a common memory which stores disk management data indicating a status of each of said disk units, said common memory being accessible by each control unit; and

a plurality of multiplex communication channels each connecting some of said disk units, said spare disk and said second control unit,

wherein data transfer in said multiplex communication channel is controlled by said second control unit, and data transfer speed of said multiplex communication channel is higher than that of each of said disk units,

wherein said disk units form a plurality of groups each including at least one disk unit from each communication channel, and

wherein data of a disk unit connected to one communication channel of

a group can be recovered using data of another disk unit connected to another communication channel of said group.

Claim 15, line 2, please, replace "a plurality of communication channels" with – the plurality of communication channels--;

Claim 17, line 2, please, replace "a plurality of communication channels" with – the plurality of communication channels--;

Claim 19. (currently amended) A disk array comprising:

a plurality of disk units;

a first control unit, to be connected to a host unit, for controlling input and output between said host unit and said disk array;

a second control unit, connected to said disk units, for controlling input and output between said first control unit and said disk units and controlling transfers between said disk units; and

a common memory which stores disk management data indicating a status of each of said disk units, said common memory being accessible by each control unit; and

a plurality of multiplex communication channels each connecting some of said disk units and said second control unit,

wherein data transfer in said multiplex communication channel is controlled by said second control unit, and data transfer speed of said multiplex communication channel is higher than that of each of said disk units,

wherein said disk units form a plurality of groups each including at least one disk unit from each communication channel, and

wherein data of a disk unit connected to one communication channel of a group can be recovered using data of another disk unit connected to another communication channel of said group.

Claim 21, line 2, please, replace "a plurality of communication channels" with – the plurality of communication channels--;

Claim 23, line 2, please, replace "a plurality of communication channels" with – the plurality of communication channels--.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise Tran whose telephone number is (571) 272-4189. The examiner can normally be reached on Monday, Thursday, and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Application/Control Number: 10/757,936

Page 7

Art Unit: 2189

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Denise Tran". The signature is written in a cursive, flowing style.

Denise Tran

9/15/05